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4.300/4.350 Ventura Shaker/Incubator
User Manual

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Ventura
Shaker/Incubator
User Manual

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1 Unpacking the unit

1.A Unpacking

Place the shipping carton on the floor, open the carton and unpack the sub components .

☝Note: Lift the main unit out of the box by putting your hands under the main body of the unit. The machine will lift out of the box with complete with both foam-packing blocks on each end.

After unpacking the unit make sure that you have all the following components. Please contact your supplier immediately if you notice one of the components are missing or damaged.

☝Note: Do not attempt to assemble a unit using damaged components.

A.	Ventura Shaker	Cat. No. 4.300
B.	Mains cable with -	
	European mains plug	Cat. No.5520
	or	
	British mains plug	Cat. No.5521
	or	
	American mains plug	Cat. No.5522
C.	Power supply unit	Cat. No.6005
D.	This user manual	Cat. No.300-6000

Retain the packaging for future shipping needs.

The remote power supply unit is a Switch Mode Power Supply and automatically adjusts to the main supply characteristics and will work with any mains voltage from 110V to 250V and 50/60Hz.

1.B Positioning

Ventura shaker requires an operation environment of between 10 ºC – 32 ºC. Remember that the incubator can control its temperature all the time there is a minimum differential of 5°C above ambient. In other words, you cannot control a temperature of 37°C inside the chamber, if the ambient temperature is above 31°C.

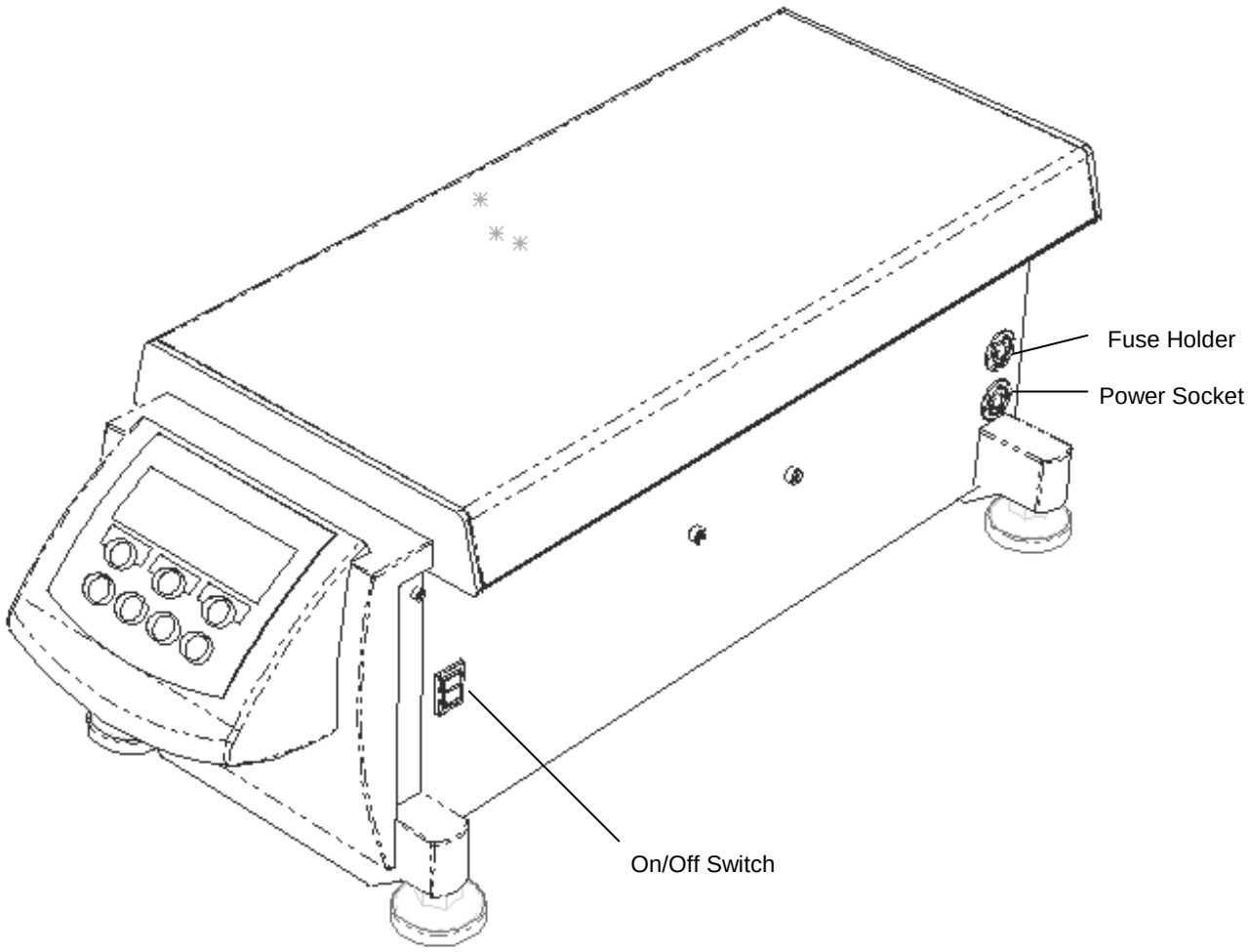
The Ventura 500 occupies a bench space of 20cm width and 55cm depth. Clear an area of this size on your work surface and position Ventura to the left of this space. Adjust the levelling feet by screwing them in or out until the unit is horizontally level and stable.

Conveniently place the remote power supply so the lead can easily be attached to the unit, insure that it is not covered and has access to a free flow of air over it.
The remote power supply has a built-in fan and therefore must be kept free to air access at all times. Do not place the power supply unit in a tightly confined space.

2 The sockets panel

The sockets panel is located on the right hand side of Ventura and contains the following:

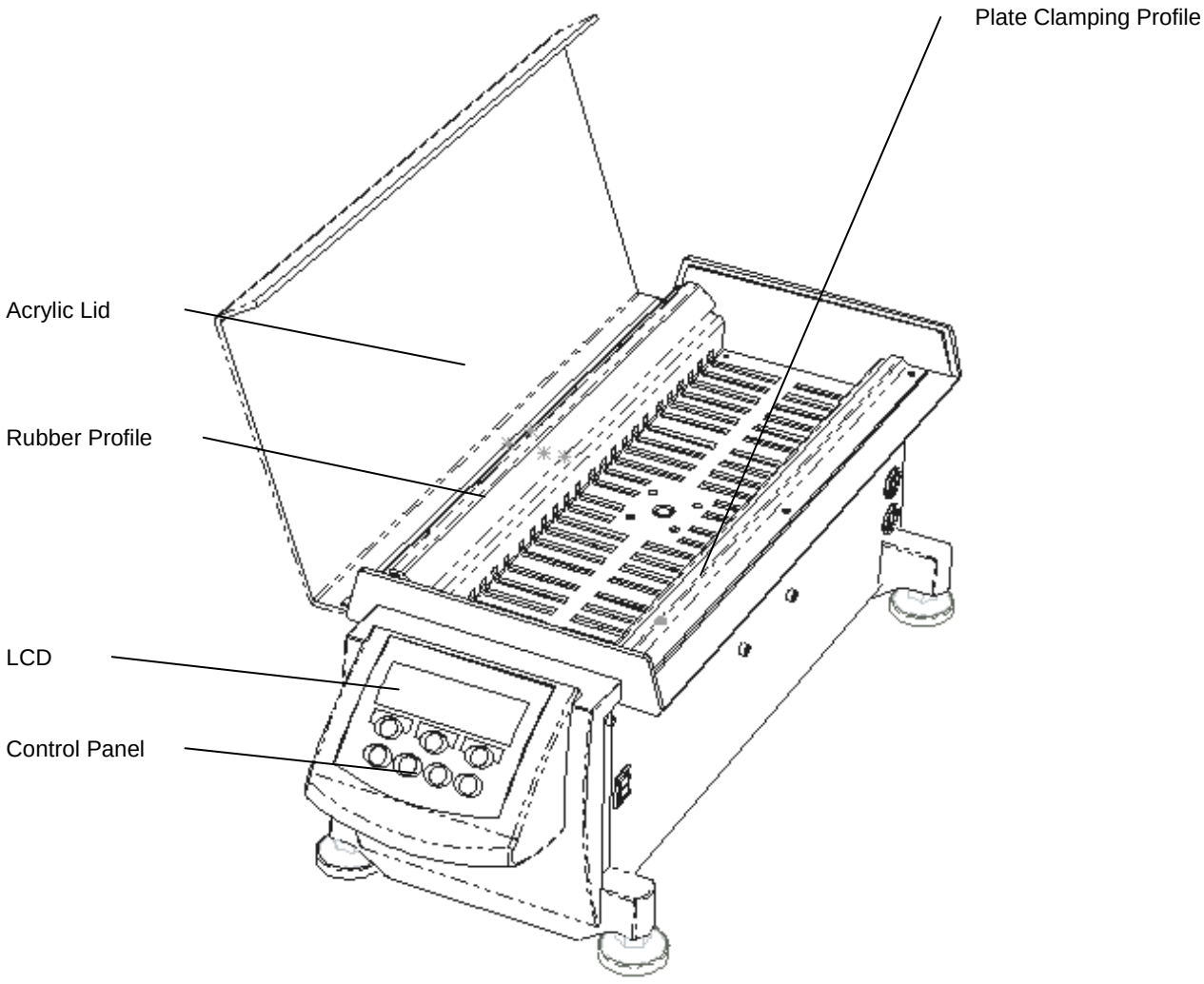
1. Power On/Off switch. ‘
2. Fuse Holder containing a T5.0A.
3. A 2.1mm power socket for the connection of the remote power supply.



3 Assembly

3.A General assembly

1. Remove all packing material from around the plate carrier area.
2. Plug the power supply cable plug into the socket on Ventura's side panel.
3. Plug the mains cable into the remote power supply unit and the mains plug into your main supply. Note. At this time you will hear the fan in the remote power supply start.
4. Switch the power switch to the 'On' position. The back illuminated LCD will display the pre set speed, the current chamber temperature and the pre set time.



4 Familiarising yourself with Ventura Shaker/Incubator

4.A General

Your Ventura Shaker/Incubator is a versatile machine that can hold up to four microtitre plates of any format. Pressing the enter key starts the orbital shaking motion. You can also use the machine to incubate without shaking or to shake without incubating.

The instrument is designed as an open frame transparent system in order to facilitate maintenance and upgrade possibilities and allow an easy integration with existing robotic systems.

4.B Familiarising yourself with Ventura – system hardware components

For added safety all Ventura models are fitted with a remote power supply, therefore there is no mains voltage apparent within the unit. The remote power supply plugs into your mains supply socket and should be kept away from the unit and dry at all times.

The remote power supply has a built-in fan and the aperture must be kept free to air access at all times.

The Ventura shaker operates by rotating the central eccentric shaft that supports the plate holder platform in an orbit of 0.75mm. The shaft is located in precision ball bearings.

The plate chamber is heated with a cross flow fan fitted with a heating element. The temperature in the chamber is sensed by a thermistor and is electronically regulated.

Switching the unit ‘On’ will start the fan and the heater. The heater will raise the temperature in the chamber to the level selected. Opening the lid will stop the heating, the fan and shaking.

4.C Familiarising yourself with Ventura – system software interface components

Ventura’s various settings are achieved via the front control panel. The control panel is equipped with a total of seven keys.

Three of the keys are located adjacent to the display and are dedicated to the setting of the speed, temperature and shaking time. When you are in the setting mode, the relevant parameter flashes until you enter the desired value by pressing the ENTER key. You can only alter one parameter at a time.

‘UP’ & ‘DOWN’ keys: These keys will either increment or decrement the values you are setting.

‘ENTER’ key: The ‘enter’ key is used to save the setting and to start the shaking operation.

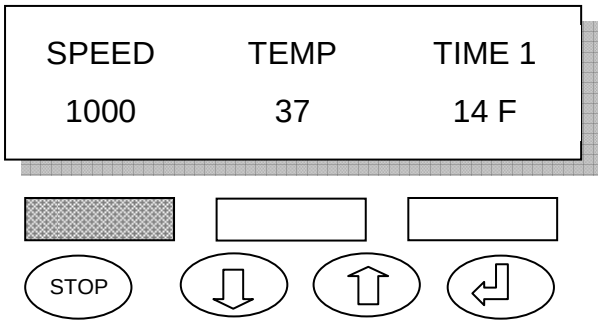
‘STOP’ key: The ‘STOP’ key allows you to abort the shaking operation at any time.

You cannot alter the temperature or the time whilst the shaking is in operation.

5 Setting the operational parameters

5.A Speed

Press the key under the word ‘SPEED’. The legend will flash.
Use the up/down keys to vary the speed up to a maximum of 1300rpm. Press the ‘Enter’ key to log the value into the memory of the unit.

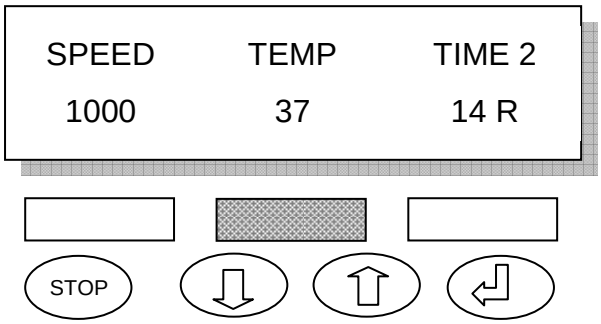


You can also change the speed of shaking while the unit is running.

5.B Temperature

Press the key under the word ‘TEMP’. The legend will flash.
Use the up/down keys to vary the temperature up to a maximum of 45°C. Press the ‘Enter’ key to log the value into the memory of the unit.

Remember: You can only achieve an efficient temperature control if the temperature is set to a minimum of 5°above ambient.



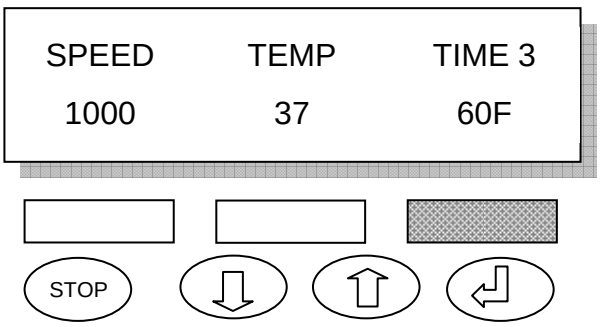
The unit displays (flashing) the actual temperature while in normal running mode. To view the set temperature, press the temperature button. The set temperature is displayed until the enter key is pressed

The temperature will flash if it more than +/- 2°C outside the preset temperature

In order to use the machine as a shaker only, set the temperature to below ambient temperature.

5.C Timers

The Ventura instrument is fitted with 4 individual timers. When you load a plate you need to select one of the 4 positions and then using the up/down arrow keys select the appropriate timer on the display. When you press the enter key the unit will start and the symbol after the shaking time will change from F (free) to R (running). If the unit is already running open the lid and select another free position load the plate and close the lid, the unit will start again. Now use the up/down arrows to select the appropriate timer and press enter, this will start this timer.
When any of the timers finishes there is an audible alarm that sounds and the appropriate timer flashes, pressing the “enter” key stops the alarm. The unit will only stop shaking when the last timer has timed out. You can check the individual timers when the unit is running by using the up/down keys.
You can use the up/down keys to vary the running time when the time display is showing “F” up to a maximum of 999 minutes.

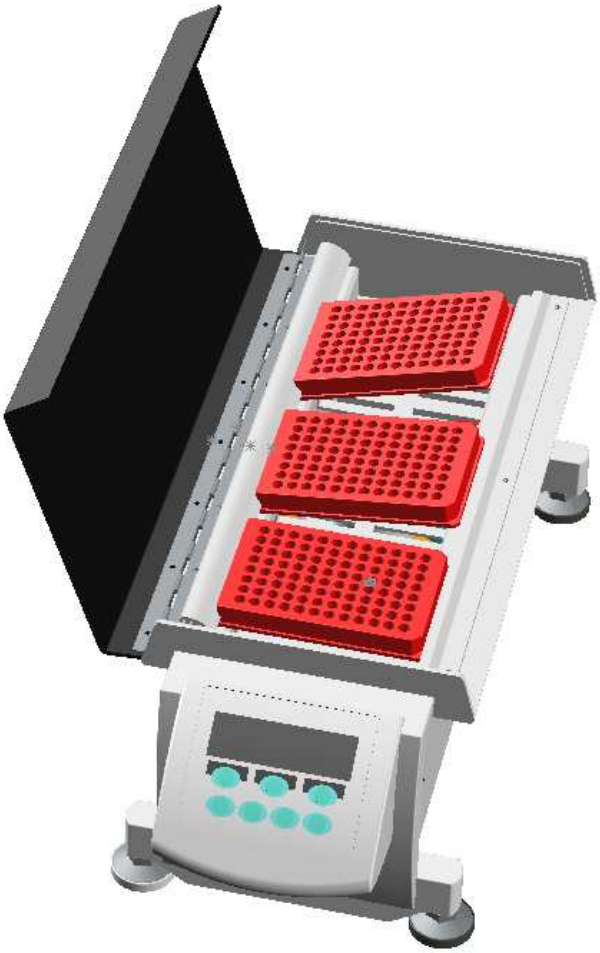


Provided the lid is closed, the shaking operation will start when you press the ‘Enter@ button,

The time is displayed as a count down mode i.e. it displays the time left to run.
When you open the lid during run operation, the count down is stopped and restarted as soon as you close the lid.

6 Loading the plates in the chamber

You can load up to four plates into the chamber. Load the plates by pushing their short edge under the rubber profile and inserting the opposite edge under the plate clamping profile.



7 Things to remember

Leaving the chamber open for an extended period will cause the heated environment of the chamber to cool down and the incubator will require longer time to achieve the set temperature.

Although it is possible to load or unload plates at any time, do it as quickly as possible in order to maintain temperature consistency.

8 Maintenance routine

These instructions are intended as a daily routine that will help you to keep the equipment fit for a long operational life.

Safety first: Always wear disposable gloves, safety goggles and a laboratory coat before performing any maintenance routine. Switch off the power supply unit.

At the end of a working day clean the plate carrier using a cloth dampened with disinfectant.

If you suspect that any liquid might have entered the fan chamber, unscrew the four socket head screws that hold the plate carrier in position. Lift the plate out and clean the chamber thoroughly. Refit the plate making sure that the four tubes fit onto their positions on the locating shafts.

Only use a damp cloth to clean the Acrylic lid. DO NOT use any abrasive materials.

9 Trouble shooting

The following guide is aimed to help you to address operational problems of the equipment. Please contact our qualified service engineer if the fault continues to exist after you have completed these checks.

Problem	**Possible Cause**	**Possible Remedy**
1. Fan on power supply unit is not working	▪ No power to the PSU ▪ Faulty Power Supply Unit	▪ Check fuse on mains plug ▪ Replace power supply
2. Display & Power LED do not illuminate	▪ No power to the unit	▪ Check the fuse on the unit , replace if required and check power connection is well inserted into the socket.
3. Fan in unit is not working	▪ Faulty lid switch	▪ Check that the lid switch is free moving
4.	▪ ▪	▪ ▪

10 Sending back for maintenance or repair

Please do not send the equipment back for repair or maintenance until you have agreed the procedure with either Mikura Ltd. or your distributor. You will receive a Return Authorisation Number (RAN) once you have agreed that the instrument must be returned.

Units will only be accepted for repair if accompanied with a fully completed and signed Return & Decontamination Certificate. A copy of the certificate is attached to this manual. Units, which are not accompanied with the certificate, will not be accepted into the factory and returned at your expense.

Note: The equipment can be returned only after the following decontamination procedure has been completed.

Safety first: Always wear disposable gloves, safety goggles and a laboratory coat before performing any decontamination routine.

1. Wet a cleaning pad with bleach solution and clean all outside surfaces of the equipment

2. Pack the unit in its original packaging. Mikura Ltd. is not liable for any damage incurred during transport if the original packaging is not used.

Return & Decontamination Certificate

Mikura Limited
Spinningwood Farm
Burnthouse Lane
Lower Beeding
W Sx, RH13 6NN
England
☎ 44 (0) 1403 891875
🖷 44 (0) 1403 892651
info@mikura.co.uk

RAN number ☐☐☐☐☐☐☐
Serial Number ☐☐☐☐☐☐☐

Name

_____

Laboratory name

_____

Full address:
Street

_____

Town

_____

ZIP

_____

Tel. No.

_____

Fax No.

_____

Email

_____

Laboratory supervisor

Describe nature of fault:

Is the equipment's surface or components damaged in any other way?

The equipment have been in contact through use or otherwise with the following media:

- ☐ Body fluids
- ☐ Toxic media
- ☐ Carcinogenic media
- ☐ Radioactive media
- ☐ Other hazardous materials

  Please specify:

  _____

I hereby certify that the enclosed equipment has been fully decontaminated as per the instruction in the Ventura Manual.

To the best of my knowledge, service personnel can handle the equipment without exposing them to health hazards.

10.A.1.1 Signed _____

Print name _____

Date _____

11 General Specification

Dimensions - main unit:	210mm(W) X 530mm(D) X 370mm(H)
Weight – complete system:	4.2Kg
Operating voltage:	100-240Vac 50/60Hz
Power consumption:	130VA
Power Supply	24V 5.4A DC Switch Mode, centre +
Environmental operating temperature:	10 º C – 40 ºC
Environmental storage temperature:	4º C – 40º C
Temperature setting	ambient +5°C up to 45°C
Temperature precision	+/- 1°C
Speed setting	600-1300 rpm
Speed precision	+/- 5%
Time setting	1 to 9999 minutes in 1 minute steps
Time precision	+/- 5%
Intermitent shaking	1 -15 minutes On + 1 – 15 minutes Off

CE

The CE sign certifies that the instrument meets the requirement of the EEC directive and has been tested according to the specified test methods.

WEEE COMPLIANCE

This product is required to comply with the European Union's Waste Electrical & Electronic Equipment (WEEE) Directive 2002/96/EC. It is marked with the following symbol:

Mikura Ltd has contracted with one or more recycling/disposal companies and this product should be disposed of or recycled through them. Further information on Mikura Ltd's compliance with these Directives, the recyclers, and information on Mikura Ltd products which may assist the detection of substances subject tothe RoHS Directive are available on request.

Produced by

Mikura Ltd.
Spinningwood Farm
Burnthouse Lane
Lower Beeding
W Sussex RH13 6NN
England

It is the stated philosophy of Mikura Ltd to preserve the environment wherever possible.

Mikura will only use materials and production techniques that cause least environmental damage.

12 Appendix A

12.A Hardware information for the Service Engineer

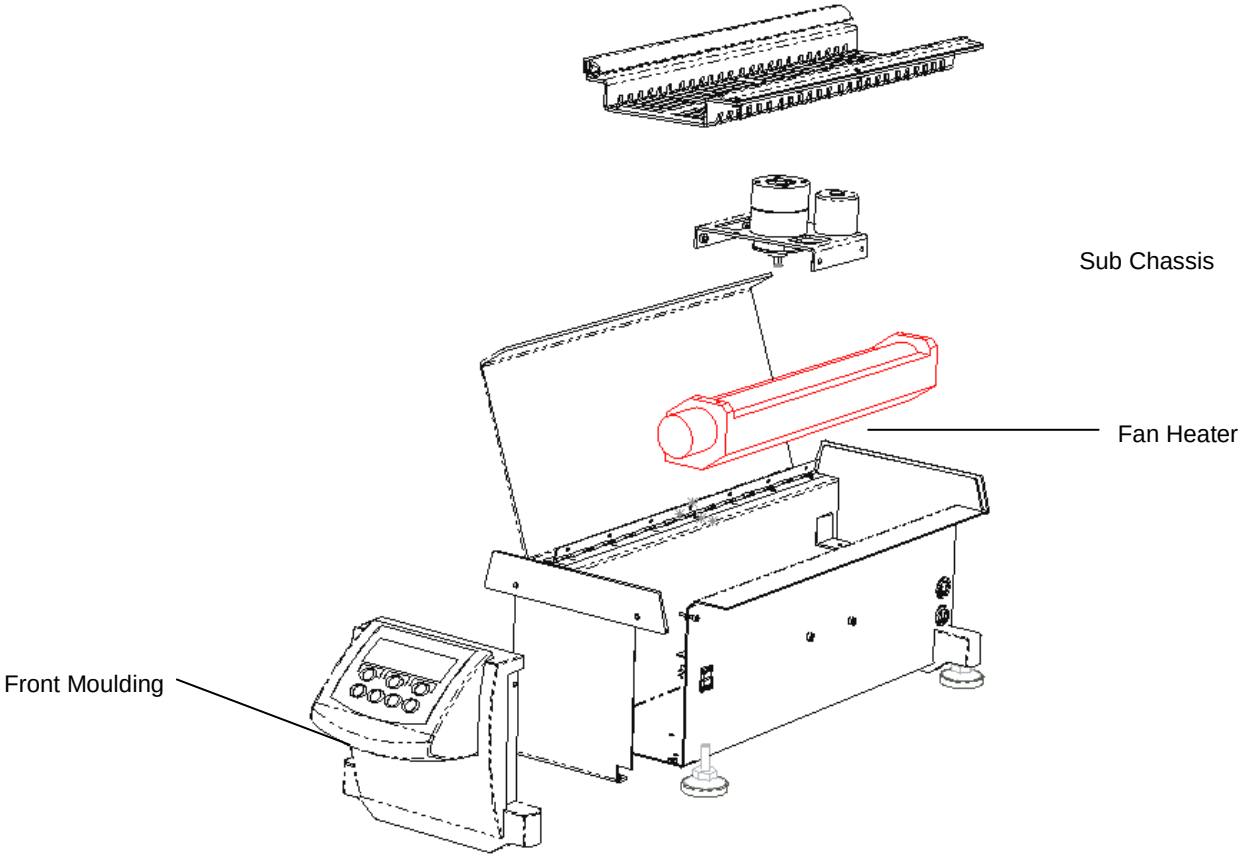
Ventura is constructed in three main sub assemblies:

1. The motorised eccentric unit
2. The Fan Heater unit
3. The electronics PCB

In order to remove the motorised eccentric unit, unscrew the four socket head screws in the centre and the two screws each end of the plate carrier. The remove the four screws, two each side of the unit and lift out the motor and eccentric bearings.

To replace the drive belt, turn the sub assembly upside down. Slip the belt off the large pulley and then off the small pulley.

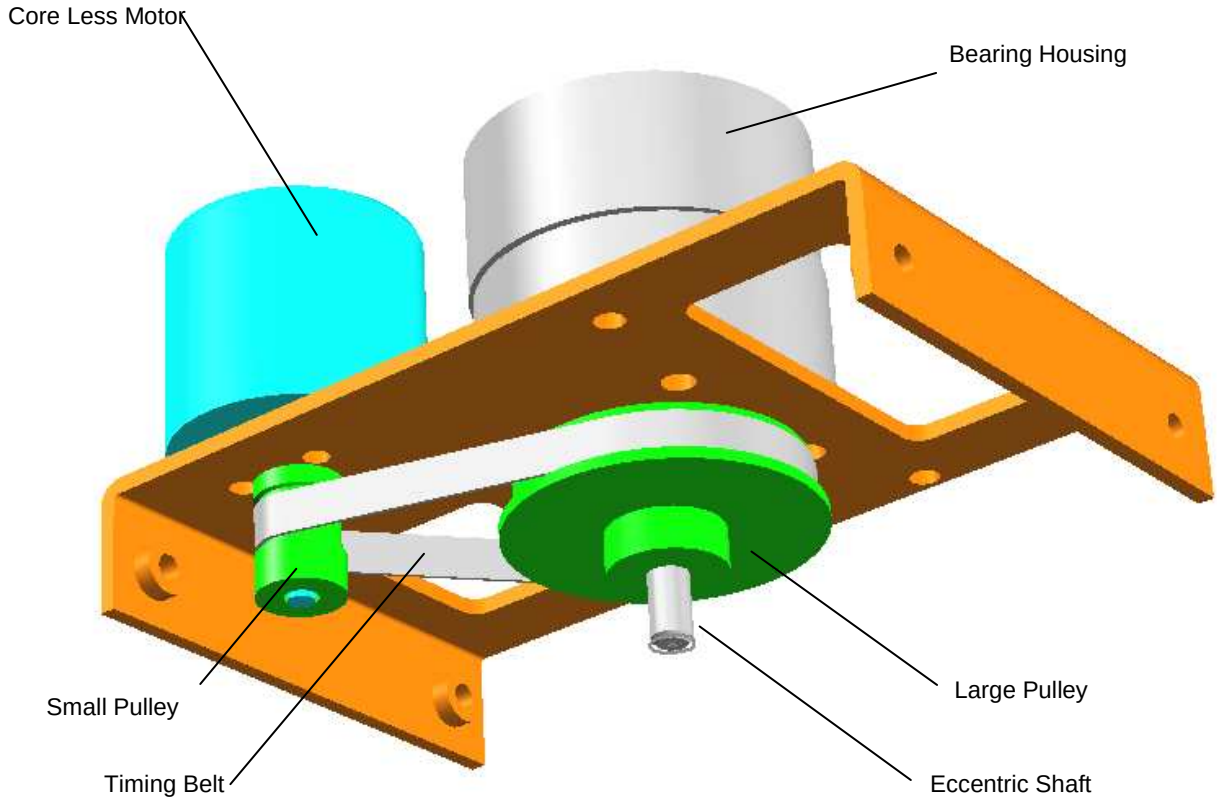
The Fan Heater unit is fixed to the chassis with four PT screws. These screws are accessible on the underside of the chassis.



The front moulding must be removed in order to access the PCB. The moulding contains a display PCB and a control PCB these are linked together via a ribbon cable.

The front moulding is fixed to the chassis with six M3 socket head screws – one on each side two on the bottom of the chassis and two are accessible from inside the chamber. The display PCB is fixed to the front moulding with four M3 screws. The control PCB is fixed to the chassis end plate using 6 x M3 nuts, one in each corner and two attaching the heat sinks to the chassis.

Unplug the tail of the keypad membrane before attempting to remove the display PCB.



13 Calibration + change to Intermittent shaking.

With the unit powered up hold the “Hidden Key” down for two seconds.

The display will now show Def, Tecal and Cont above three of the function keys.

If you press the Def function key it will reset all the default values to the original factory settings, this includes speed, time defaults and continues shaking.

Pressing the Tecal function key it will show Tecal1 with a figure below it, (112 is the default value) using the arrow keys you can now alter this value.

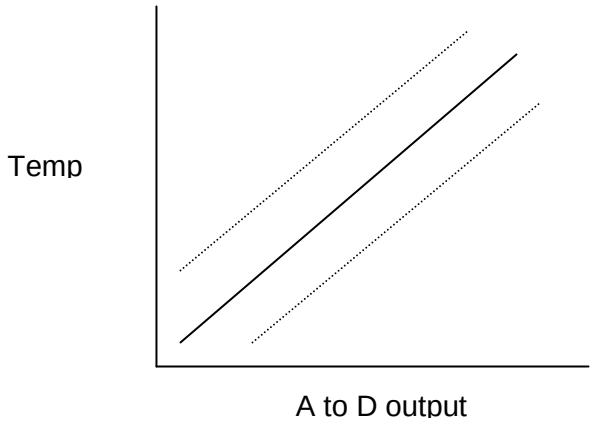
Altering this will change the offset of the slope. See graph fig1.

Note: It should only be necessary to change this number one or two points up or down, you should retest after each change.

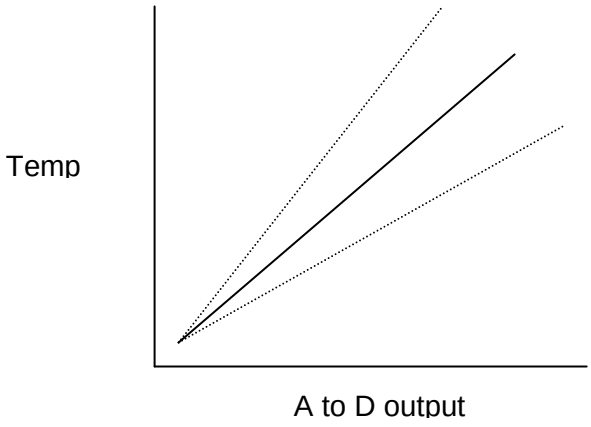
After you have changed Tecal1 press enter and you will now see Tecal2 with a figure below it (97 is the default value) using the arrow keys you can now alter this value.

Altering this value will change the slope angle. See graph fig2.

Note: It should only be necessary to change this number one or two points up or down, you should retest after each change.



Graph Fig 1



Graph Fig 2

Pressing the Cont function key will change it to Int (Intermittent).

Press the enter key to accept the change and you will then see Time On and Time Off over the two end function keys; by pressing the function keys you can increment the number up-to a maximum of 15 minutes it will then return to 1 minute. The maximum ON and OFF time is 15 minutes.

Press enter to accept the changes.